# PERSONNEL RESEARCH SERIES

## PRS

PROMOTION TO GS-13 FORESTER:
SOME EMPIRICAL ANALYSES OF
THE DECISION-MAKING PROCESS

George W. Mayeske

PROMOTION TO GS-13 FORESTER: SOME EMPIRICAL
ANALYSES OF THE DECISION-MAKING PROCESS

George W. Mayeske

Personnel Research Staff

Office of Personnel

United States Department of Agriculture

Washington, D. C.

## SUMMARY AND HIGHLIGHTS

This report presents the results of an analysis of the manner in which information is utilized from the Promotion Roster Information Sheet to ascertain promotability from Forester (series 460) GS-12 to GS-13.

The major categories of information on this form are of two types, those referring to the individual's characteristics and those referring to his qualifications. An explicit weighting system is used to combine characteristics and qualifications scores into an index of promotability.

It was found that out of eleven characteristics categories there is little or no gain in information after the six most informative categories have been considered (summarized in Exhibit 5, page 10). Similarly, out of fifteen qualifications categories, eight yielded most of the differential information (summarized in Exhibit 10, page 15) "best". However, these categories of characteristics and of qualifications differed for different program specialties. The total characteristics and total qualifications scores were found to combine in accordance with the officially prescribed weighting system (in a ratio of about 1.5 or 2.0 to 1).

The development of a means for supervisory documentation of effective and ineffective behaviors was recommended as an approach for the improvement of current appraisal procedures.

## TABLE OF CONTENTS

# LIST OF EXHIBITS

LIST OF EXHIBITS (Continued)

## Introduction

Career planning involves systematic progression through various alternative position pathways. Thus, in the Forest Service, various lines of advancement are depicted through which an individual can move within the Forester series (see "Organization and Management in the Forest Service," USDA, February, 1962, p. 59). This career network has many choice points, from the standpoint both of the individual and of the organization. Examples of the organization's choice points are the selection and promotion of a Forester to a Ranger, or a Ranger to a Forest Supervisor. Willingness to be considered as a candidate for promotion to a particular position is an example of an individual's choice. Thus, an individual may prefer to remain in a given locale for some period of time, and may therefore withdraw from consideration during that period.

At each of these choice points there are certain policies affecting the evaluation of an individual's qualifications. These policies may be explicit and even formally stated, or they may be implicit and informal. Where the evaluation and selection of large numbers of candidates is involved these policies are usually explicit, but where the numbers are small the policies are less likely to be explicit.

Whether policies are explicit or implicit, operationally they are manifested in selection decisions which must be made in order to meet the needs of an ongoing career system. At each choice point at least two kinds

of organization decisions can be made.  These are:

1.  An appraisal of the candidate's qualifications and determination of his degree of acceptability for the position.

2.  Selection of one or more candidates to fill the opening(s).

Oftentimes the first step is conducted before the openings actually occur, and then when an opening occurs one or more individuals are selected from the pool of qualified people.

Reported here is an analysis of the decision process presently involved in appraising candidates for promotion from GS-12 to GS-13 in the Forester (460) series.  It focuses on the first kind of selection decision.

The information used in this analysis was taken from the Forest Service's Promotion Roster (Form 6100-10(1/60)).  A specimen of this form is given in the Forest Service Employee Appraisal Guide (Forest Service Category 2 Handbook, 6166.01, page 8).

Two major kinds of information are documented on this form by a candidate's supervisor.  These pertain to the candidate's <u>characteristics</u> (e.g. drive, self-confidence, objectiveness, etc.) and <u>qualifications</u> (e.g. managerial skills, growth potential, work experience, etc.).  The supervisor then inspects the various characteristic scores and arrives at an overall characteristics rating.  In a similar manner, he obtains an overall qualifications rating.  These ratings are then weighted and summed to arrive at a readiness for promotion rating (see the Employee Appraisal Guide, page 26, for this weighting system).

An individual may receive a rating in one or more of the following areas: (1) Timber Management; (2) Watershed Management; (3) Land Uses (Recreation); (4) Land Uses (Other); (5) Wildlife Management; (6) Range Management; (7) Fire Control; (8) Administration and; (9) General. (The ninth category was not analyzed due to the small numbers of people involved.)

The utilization of multiple regression analysis requires that the various categories of information be quantified by assigning numbers to the kinds of information represented in each category. Many categories are already quantified as they appear on this form. For others a scheme of coding had to be devised. A description of the coding for characteristics, qualifications, and overall promotability is presented in Appendix A.

An explanation of the manner in which multiple regression analysis attempts to utilize such information will be given first. Then the questions one seeks to answer by applying this technique to information taken from the promotion roster will be described. Results and discussion of these analyses will follow.

The Utilization of Information in Multiple Regression Analysis

The manner in which this mathematical technique utilizes information is best illustrated by a few simple diagrams.

Suppose that we have two categories of information that are of interest to us. These can be represented by means of two overlapping circles or sets labeled A and B. The area of overlap, the shaded area, represents that information which is common to both A and B.
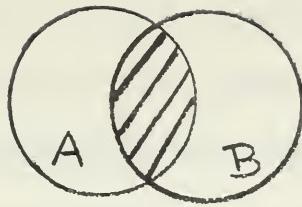
Suppose we wanted to add up everything in A and B by adding first everything in A and then everything in B. In doing this we would have counted everything in the shaded area twice, once when counting A and once when counting B. In order to be correct in our arithmetic we only want to count the shaded area once, hence we would subtract it once ($A + B = A + B -$  ).

Now let us complicate the picture a little by introducing a third set C,
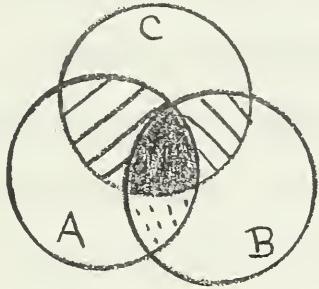


and let us define the following areas:

 - that information in the intersection of all three sets;

 - that information common to B and C which A does not have;

 - that information common to A and C which B does not have;

 - that information common to A and B which C does not have.

If we wanted to add up everything in all three sets, $A + B + C$, we would end up counting the dotted and slanted areas twice each and the solid area three times. To correct for this we would subtract the dotted and slanted areas once each and the solid area twice, i.e.

$A + B + C -$  $-$  $-$  $- 2$  .

We could make the picture increasingly complex by adding more sets of information, however, this example is sufficient. Let us ascribe some meaning to these categories of information.

Let us now assume that A, B, and C are three measures on a group of people:

A - Score for each person representing his qualifications;

B - Score for each person representing his characteristics;

C - Index designating each person's promotability.

In this context multiple regression analysis would attempt to ascertain the manner in which categories A and B are combined to arrive at an individual's promotability index. The outcome would be a set of weights assigned to each category of information so that when combined they provide the promotability index. The weights are assigned to these categories so as to maximize their relationship with the promotability index and minimize the amount of overlap between categories A and B. Thus, in the following example:
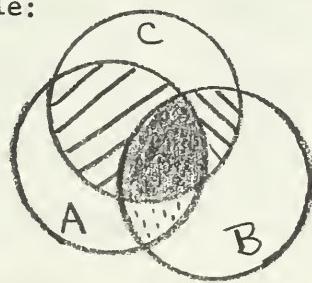


The solid area would be counted as part of A and then in assigning a weight to B the solid area would not be counted again. Thus, B would play a much smaller part in determining C than would A.

An individual's A score would then be multiplied by the weight for A, his B score by the weight for B, and then these two weighted scores

would be summed in order to arrive at an estimated C score. A measure of
the adequacy with which the C scores are estimated by this weighting
system is called the multiple correlation. This value varies from 1.00
for perfect estimation to .00 for lack of any relationship.

The kinds of questions one wants to answer from an analysis of this
nature are:

1. Are there a few critical categories of information that contri-
bute to the promotability index?

2. Do promotion policies need to be made more explicit and admin-
istered more consistently?

3. Do the present practices, as they are empirically manifested by
the analysis of the current decision-making process, result in the selec-
tion of individuals who perform well in the positions to which they are
promoted?

Results and Discussion

The full results of the analyses are presented for each of the eight
work areas in Appendix B. A graphic display is given of the contribution
of each category to the total score. A discussion of these graphs is
organized around the kinds of questions this analysis seeks to answer.
An answer to question 3 is taken up in the section on recommendations
and conclusions. Characteristics and qualifications analyses were con-
ducted for the following areas: Timber Management; Lands (Other) Manage-
ment; Fire Control and; Administration. Analyses were not conducted on
the other areas due to the small numbers of people involved.

## Characteristics Analysis

(1) Are there a few critical <u>characteristic</u> categories that contribute to the <u>total</u> <u>characteristics</u> score?

The characteristic categories included in this analysis are:

| | | | |
|---|---|---|---|
| 1. | Drive | 7. | Versatility |
| 2. | Self-Confidence | 8. | Originality |
| 3. | Objectiveness | 9. | Open-Mindedness |
| 4. | Responsiveness | 10. | Sociability |
| 5. | Initiative | 11. | Service Concept |
| 6. | Persistence | | |

Exhibits 1 through 4 present graphic illustrations of the additional amount of information that each of these categories contribute to the <u>total</u> <u>characteristics</u> score. Thus, Exhibit 1 shows that 20 percent of the <u>total</u> <u>characteristics</u> score can be accounted for by the information in Category 6 (Persistence); 28 percent can be accounted for by Categories 6 and 8 (Originality); 38 percent by Categories 6, 8 and 10 (Sociability); and so on.

Inspection of all of these graphs shows that there is little or no gain in information after the six best (or most informative) categories have been considered. However, these are not the same six categories for all areas of work. The six best categories, for each area of work, are given in Exhibit 5.

In summary one can see that: (10) Sociability is pertinent to all of the areas of work; (2) Self-Confidence, (6) Persistence and (9) Open-Mindedness are considered in three areas of work; (4) Responsiveness, (7) Versatility and (8) Originality are informative for two areas of work while other characteristics such as (3) Objectiveness, (5) Initiative and (11) Service Concept are unique to a particular work area.

# EXHIBIT 1
## TIMBER MANAGEMENT
### Gain in Information by Increasing the Number of Categories
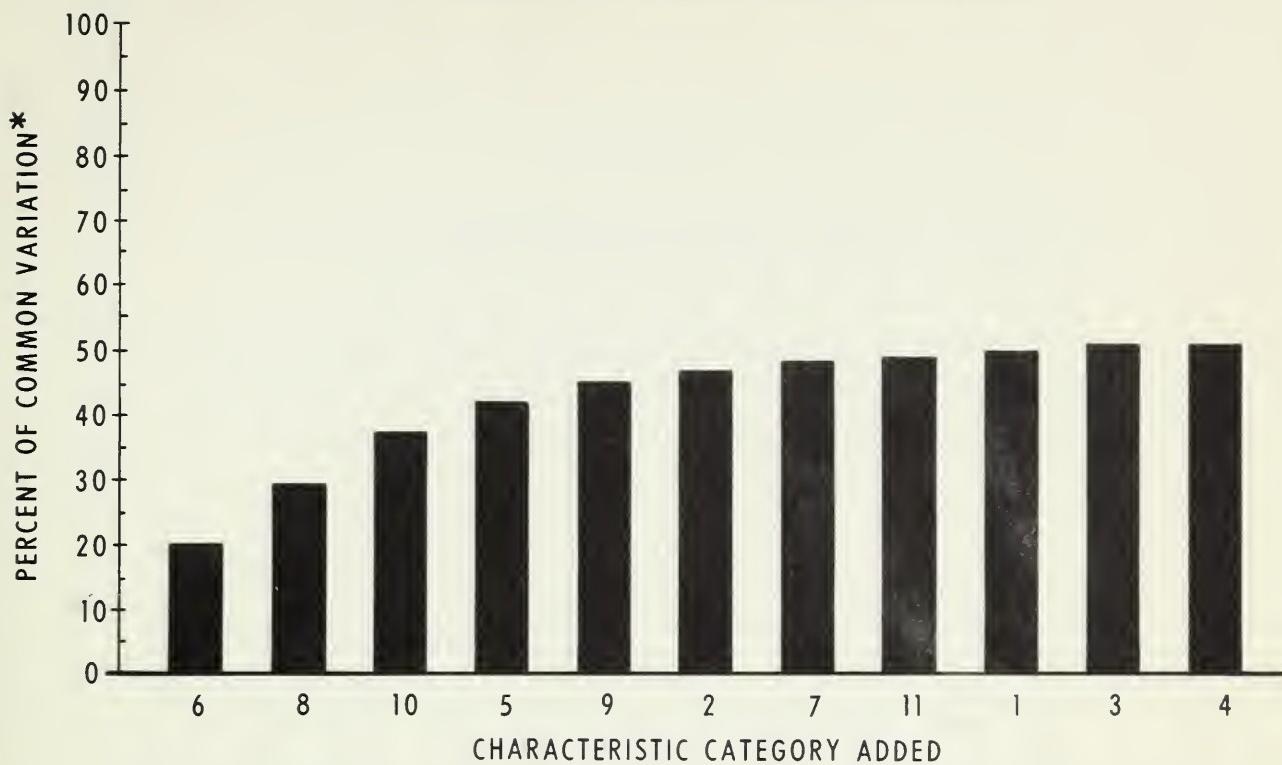


MULTIPLE CORRELATION .71.          NUMBER OF CANDIDATES 245.          *THE SQUARED MULTIPLE CORRELATION.

# EXHIBIT 2
## LANDS (OTHER) MANAGEMENT
### Gain in Information by Increasing the Number of Categories
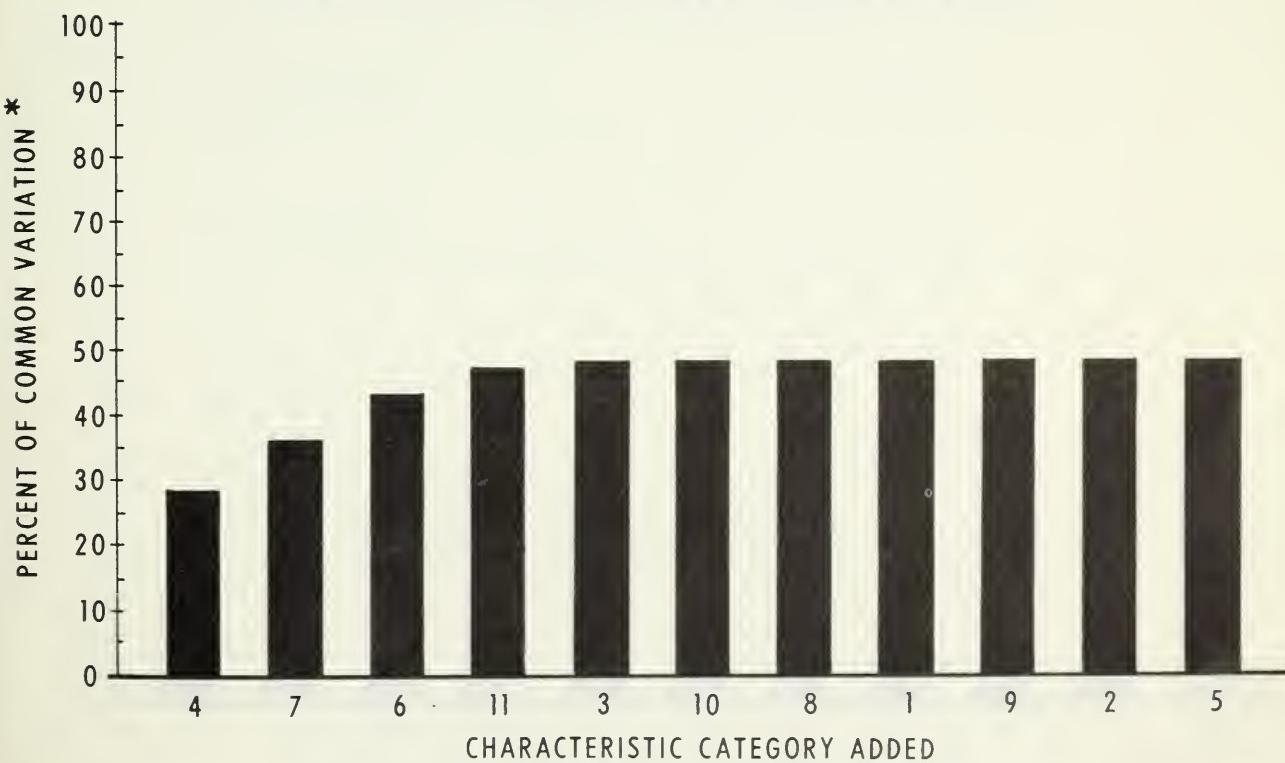


MULTIPLE CORRELATION .69.          NUMBER OF CANDIDATES 126.          *THE SQUARED MULTIPLE CORRELATION.

EXHIBIT 3

9

# FIRE CONTROL

## Gain in Information by Increasing the Number of Categories
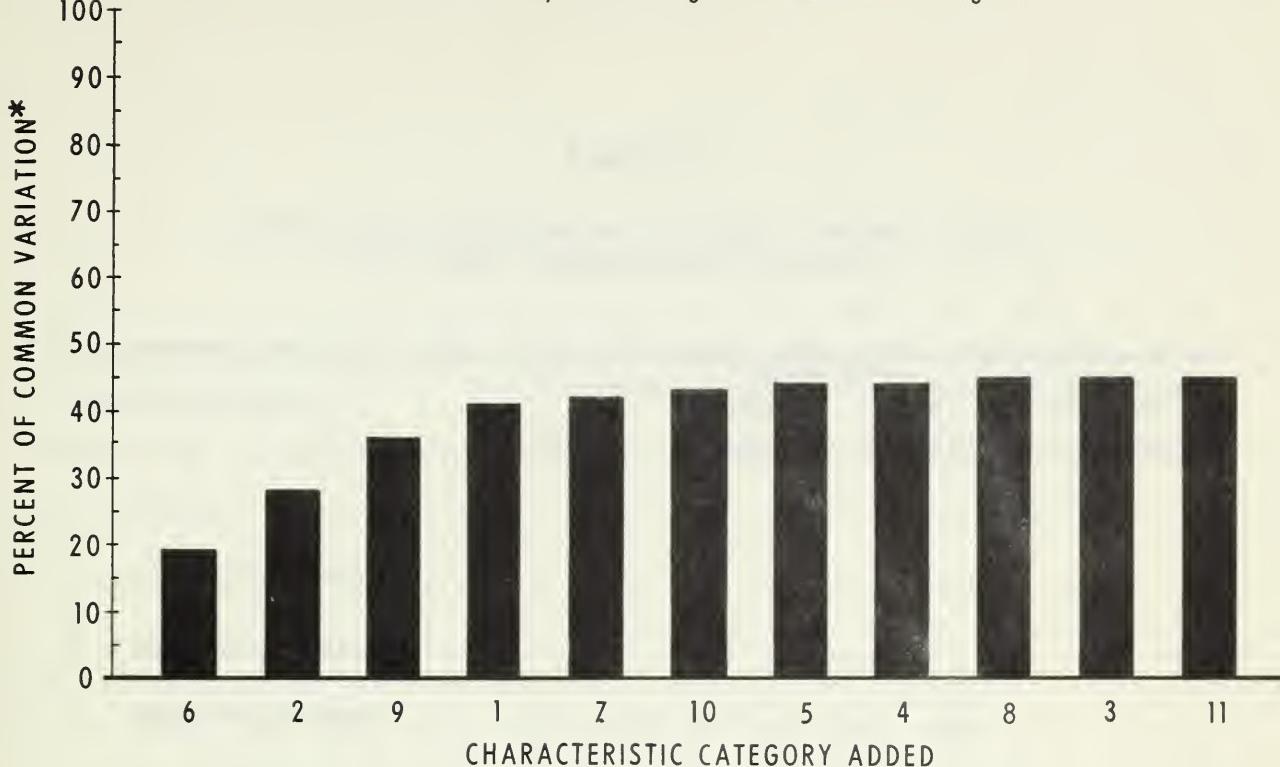


MULTIPLE CORRELATION .67.          NUMBER OF CANDIDATES 169.          *THE SQUARED MULTIPLE CORRELATION.

EXHIBIT 4

# ADMINISTRATION

## Gain in Information by Increasing the Number of Categories
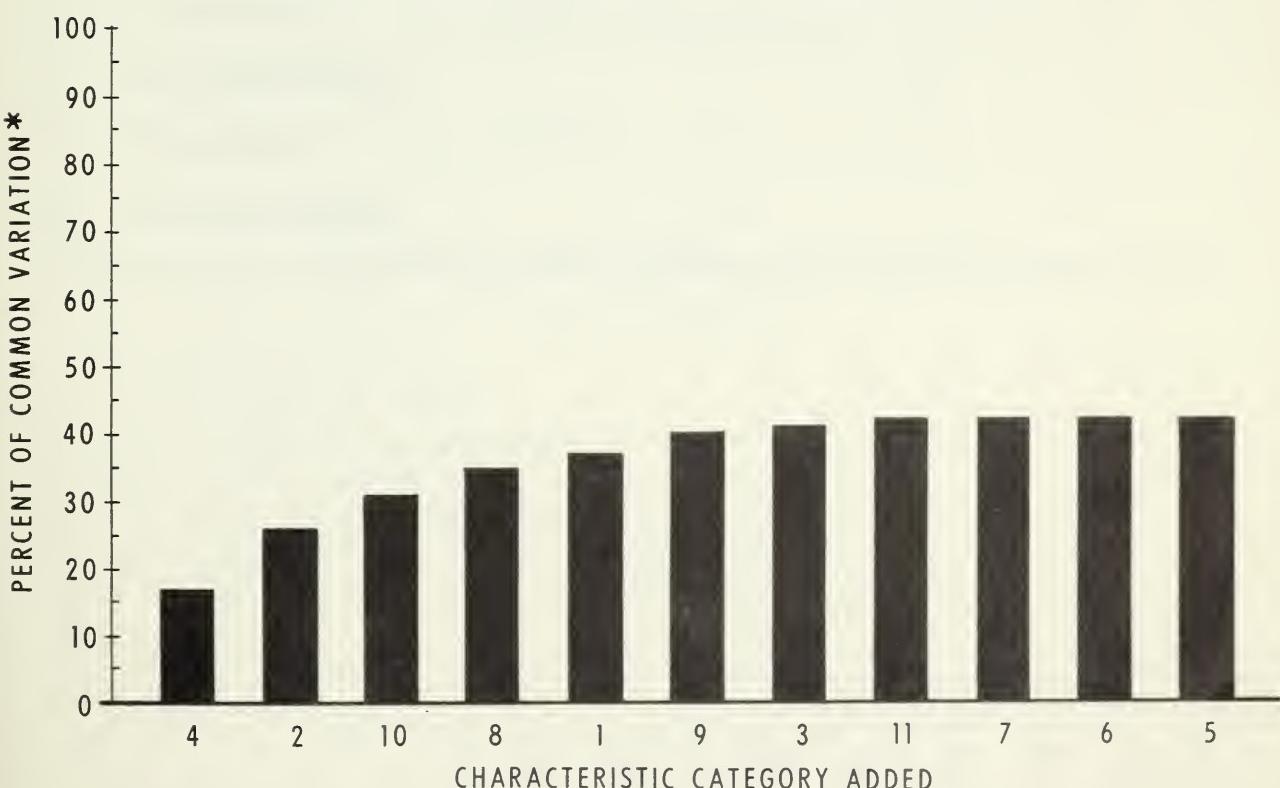


MULTIPLE CORRELATION .65.          NUMBER OF CANDIDATES 274.          *THE SQUARED MULTIPLE CORRELATION.

Exhibit 5

Rank Order Contribution of Each Characteristic
to Total Characteristics Score

| Characteristic | Work Area | | | |
| --- | --- | --- | --- | --- |
| | Timber | Lands (Other) | Fire Control | Administration |
| 1. Drive | | | 4 | 5 |
| 2. Self-Confidence | 6 | | 2 | 2 |
| 3. Objectiveness | | 5 | | |
| 4. Responsiveness | | 1 | | 1 |
| 5. Initiative | 4 | | | |
| 6. Persistence | 1 | 3 | 1 | |
| 7. Versatility | | 2 | 5 | |
| 8. Originality | 2 | | | 4 |
| 9. Open-Mindedness | 5 | | 3 | 6 |
| 10. Sociability | 3 | 6 | 6 | 3 |
| 11. Service Concept | | 4 | | |

(2) Do policies for evaluating characteristics need to be made more explicit and administered more consistently?

When the multiple correlation is high it indicates considerable agreement among supervisors in the categories of information they utilize in arriving at a _total_ _characteristics_ score. When the multiple correlation is low it indicates that supervisors do not utilize the same categories of information. The multiple correlations for characteristics (see the lower left hand corner of each graph) range from .65 to .71 indicating that improvement could be made in the manner in which these categories of information are utilized to arrive at a _total_ _characteristic_ score. A recommendation as to how greater consistency can be achieved is taken up in the section on recommendations and conclusions.

### Qualifications Analysis

(1) Are there a few critical _qualifications_ categories that contribute to the _total_ _qualifications_ score?

The qualifications categories included in this analysis are:

1.  Number of Children
2.  Availability for Transfer
3.  Need for a Transfer
4.  Growth Potential
5.  Remarks Favorable to Promotion
6.  Date of Entry in Present Grade
7.  Date of Entry in Present Assignment
8.  Date of Birth
9.  Many Specialties
10.  Managerial Skills
11.  Professional Interest
12.  English Composition
13.  Preference for this Specialty
14.  Years of Experience in this Specialty
15.  Number of Different Regions Worked in this Specialty

Exhibits 6 through 9 present a graphic illustration of the additional amount of information that each of these categories contributes to the total qualifications score. Thus, Exhibit 5 shows that: 17 percent of the total qualifications score can be accounted for by the information in Category 13 (Preference for the Specialty); 19 percent by Categories 13 and 14 (Years Experience in the Specialty); 28 percent by Categories 13, 14 and 10 (Managerial Skills); and so forth.

Inspection of all of the graphs shows that there is little or no gain in information after the eight best (or most informative) categories have been considered. The eight best categories, for each area of work, are given in Exhibit 10.

One should note that although some of these categories contribute to the total qualifications decision they may do so implicitly rather than explicitly. Thus, size of family, age, or availability for transfer may be related to other attributes of the candidate and it may be those attributes that are entering the qualifications evaluation.

Inspection of Exhibit 10 shows that the following three categories enter into the total qualifications score for all the work areas considered: (6) Date of Entry in Present Grade; (12) English Composition and; (13) Preference for that Specialty. Categories (8) Date of Birth and (11) Professional Interest contribute to three areas of work whereas (2) Availability for Transfer, (4) Growth Potential, (9) Many Specialties, (10) Managerial Skills and (14) Years Experience in the Specialty each contribute to two work areas. Those categories that contribute to a

EXHIBIT 6                    13

# TIMBER MANAGEMENT

## Gain in Information by Increasing the Number of Categories
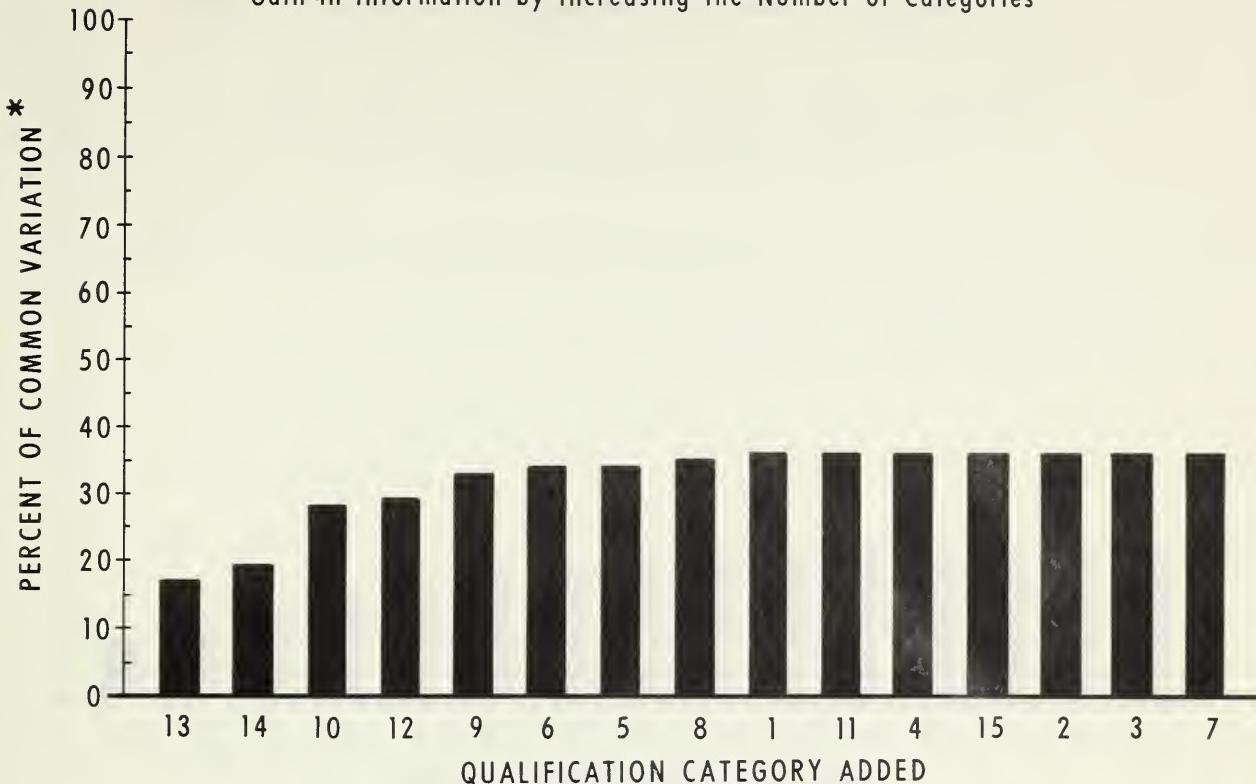


*MULTIPLE CORRELATION .60.        NUMBER OF CANDIDATES 248.        \*THE SQUARED MULTIPLE CORRELATION.*

## EXHIBIT 7

# LANDS (OTHER) MANAGEMENT

## Gain in Information by Increasing the Number of Categories
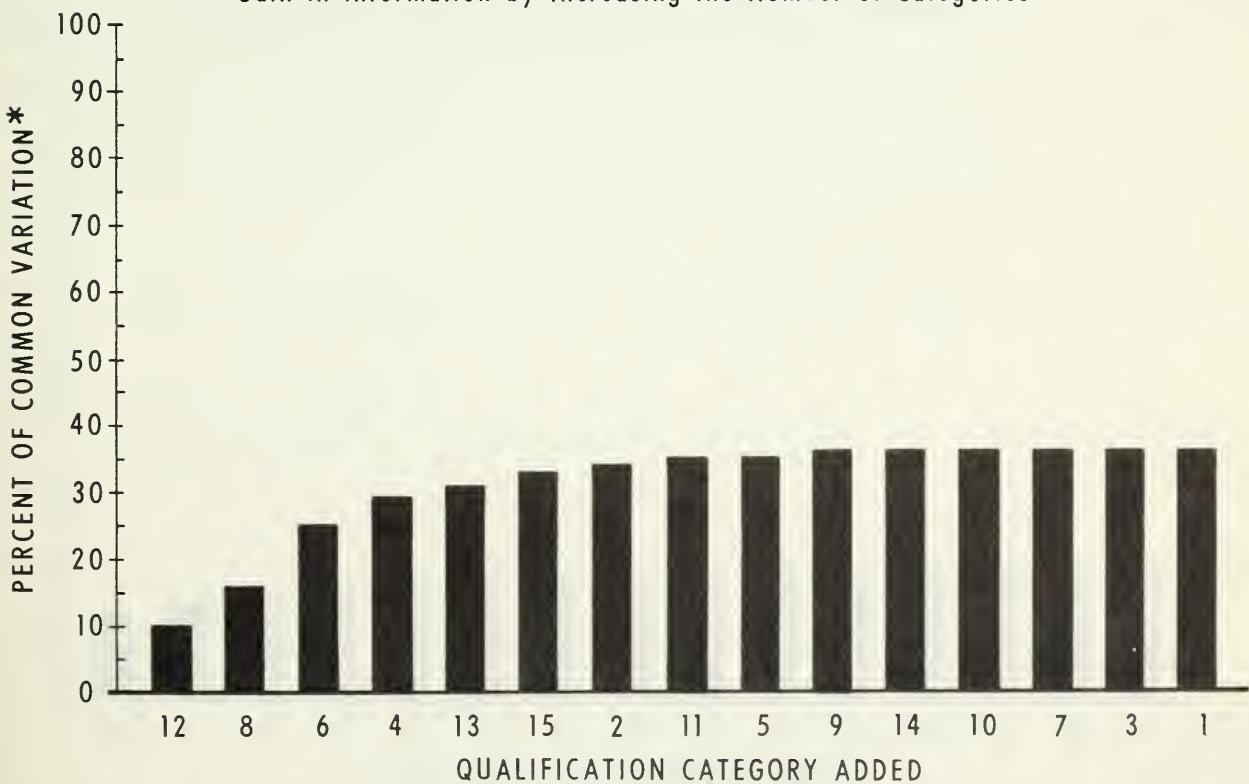


*MULTIPLE CORRELATION .60.        NUMBER OF CANDIDATES 131.        \*THE SQUARED MULTIPLE CORRELATION.*

EXHIBIT 8

14

# FIRE CONTROL
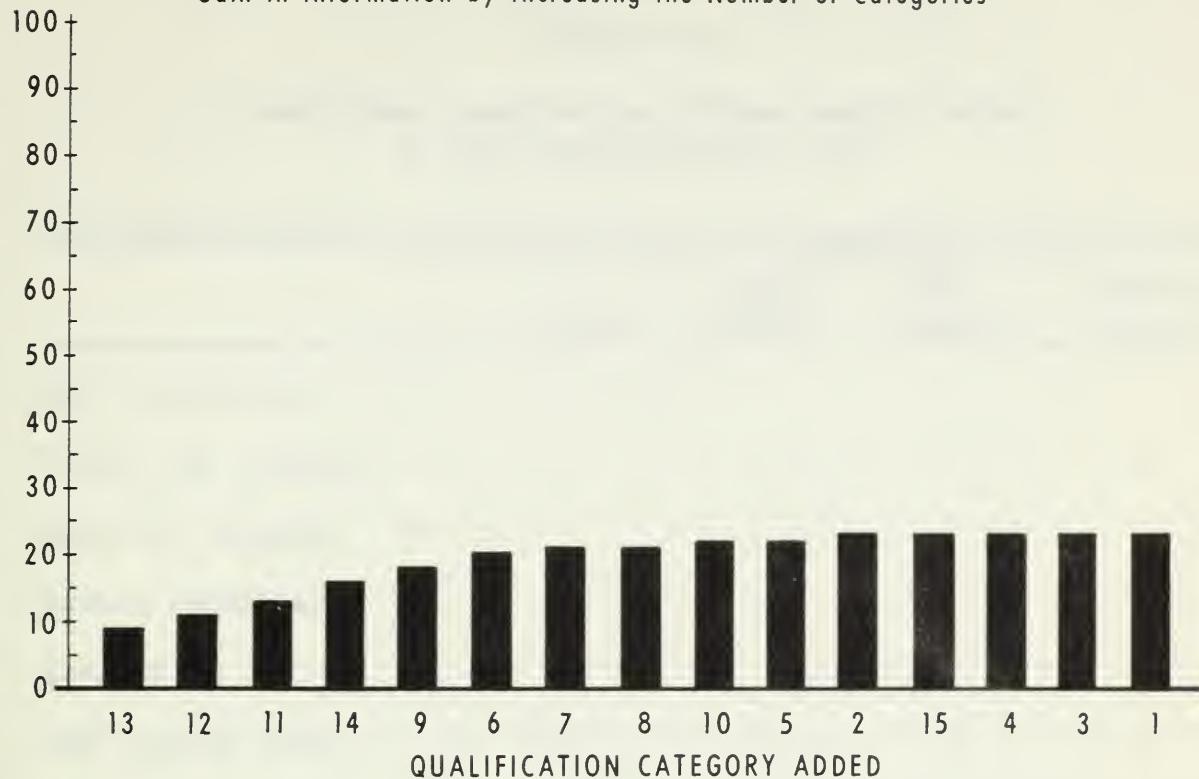
## Gain in Information by Increasing the Number of Categories

EXHIBIT 9

# ADMINISTRATION

## Gain in Information by Increasing the Number of Categories
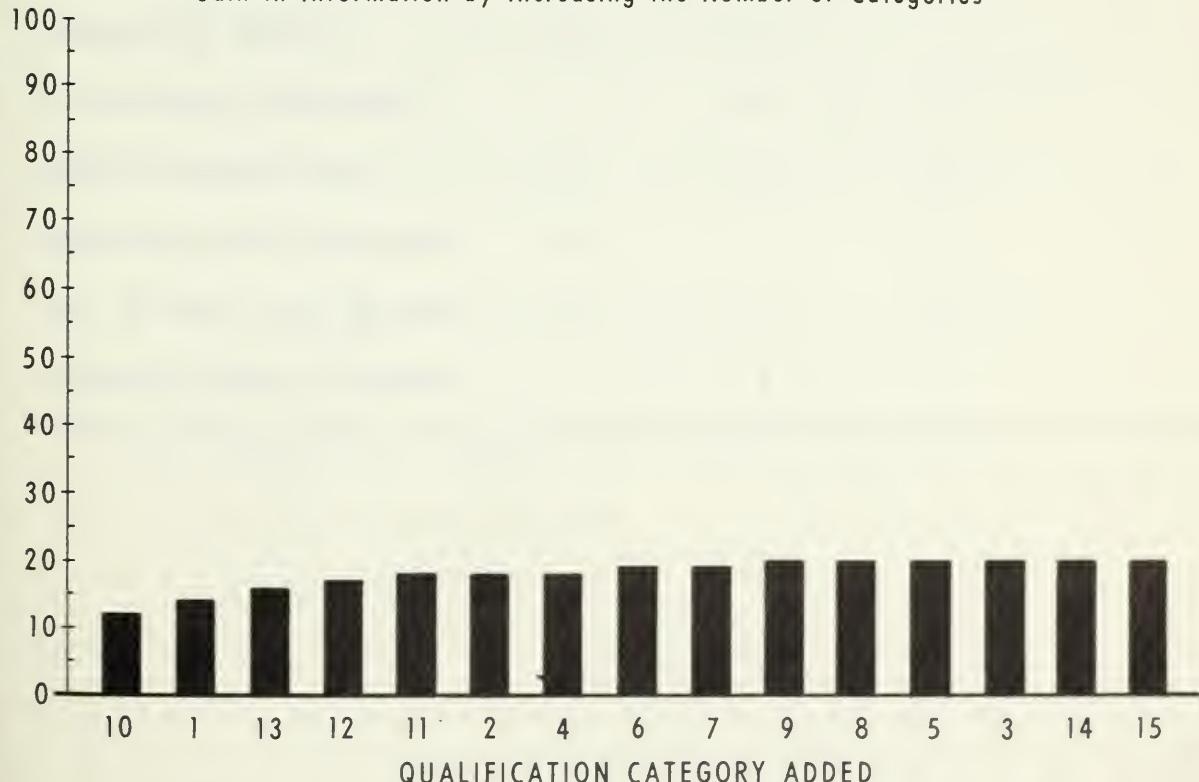
Exhibit 10

Rank Order Contribution of Each Qualification
to Total Qualifications Score

| | Work Area | | | |
| | Timber | Lands (Other) | Fire Control | Administration |
| --- | --- | --- | --- | --- |
| No. of Children | | | | 2 |
| Avail. for Transfer | | 7 | | 6 |
| Need for Transfer | | | | |
| Growth Potential | | 4 | | 7 |
| Remarks | 7 | | | |
| EOD Present Grade | 6 | 3 | 6 | 8 |
| EOD Present Assignment | | | 7 | |
| Date of Birth | 8 | 2 | 8 | |
| No. of Specialties | 5 | | 5 | |
| Managerial Skills | 3 | | | 1 |
| Professional Interest | | 8 | 3 | 5 |
| English Composition | 4 | 1 | 2 | 4 |
| Preference for Specialty | 1 | 5 | 1 | 3 |
| No. of Yrs. Exp. in Spec. | 2 | | 4 | |
| Breadth of Exp. in Spec. | | 6 | | |

single work area are:    (1) Number of Children; (5) Remarks Favorable to

Promotion; (7) Date of Entry in Present Assignment and; (15) Number of

Different Regions Worked in this Specialty.    Category (3) Need for a

Transfer, is the only category that does not contribute to a qualifica-

tions score for any of the work areas.

(2) Do policies for evaluating qualifications need to be made more

explicit and administered more consistently?

The multiple correlations for qualifications range from .45 to .60.

This indicates that there is considerably less agreement among supervi-

sors in evaluating qualifications than in evaluating characteristics.

It further indicates that there is considerable room for improvement in

the consistency with which supervisors utilize information from the

qualifications categories to arrive at a total qualifications score.   A

recommendation as to how greater consistency can be achieved is discussed

in a later section dealing with recommendations and conclusions.

## Promotability Analysis

Analysis of the manner in which the total characteristics and total

qualifications scores contribute to the index of promotability were con-

ducted for all eight areas of work.

(1) How do the total characteristics and total qualifications scores

contribute to the index of promotability?

The categories are numbered as follows:

    1.   Total Characteristics

    2.   Total Qualifications

A graphic illustration of the additional amount of information that each of these categories contributes to the index of promotability is given in Exhibit 11. Inspection of the weights in Appendix B, Exhibit 36, shows that total characteristics contribute one and one-half to two times as much as total qualifications to the index of promotability. This is in accord with the explicit weighting system advocated on page 26 of the Employee Appraisal Guide which gives more weight to total characteristics than to total qualifications in determining the promotability index.

(2) Do policies for evaluating total characteristics and total qualifications need to be made more explicit and administered more consistently?

The multiple correlations, for each of the work areas in Exhibit 11, range from .92 to 1.00. This means that the total promotability index is almost perfectly predictable from the weighted combination of the total characteristics and total qualifications scores. The high value of these multiple correlations is a manifestation of the explicit weighting system used. If an explicit weighting system were not used it is anticipated that the multiple correlations would be much lower, probably of a magnitude comparable to those for the characteristics and qualifications analyses. The explicit weighting system thus contributes to the consistency with which total characteristics and qualifications are evaluated.

Recommendations and Conclusions

It was found that for characteristics, six out of eleven categories yielded most of the differential information but that these categories

# EXHIBIT 11

## PROMOTABILITY INDEX

Gain in Information by Increasing the Number of Categories

AREAS OF WORK

PERCENT OF COMMON VARIATION*

| | Timber Management | | Lands (other) Management | | Fire Control | | Administration | | Lands (rec.) Management | | Range Management | | Watershed Management | | Wildlife Management | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category Added | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| Multiple Correlation | | .93 | | .98 | | .94 | | .92 | | .93 | | 1.00 | | .92 | | .92 |
| Number of Candidates | | 242 | | 115 | | 161 | | 267 | | 94 | | 94 | | 59 | | 43 |

18

*THE SQUARED MULTIPLE CORRELATION.
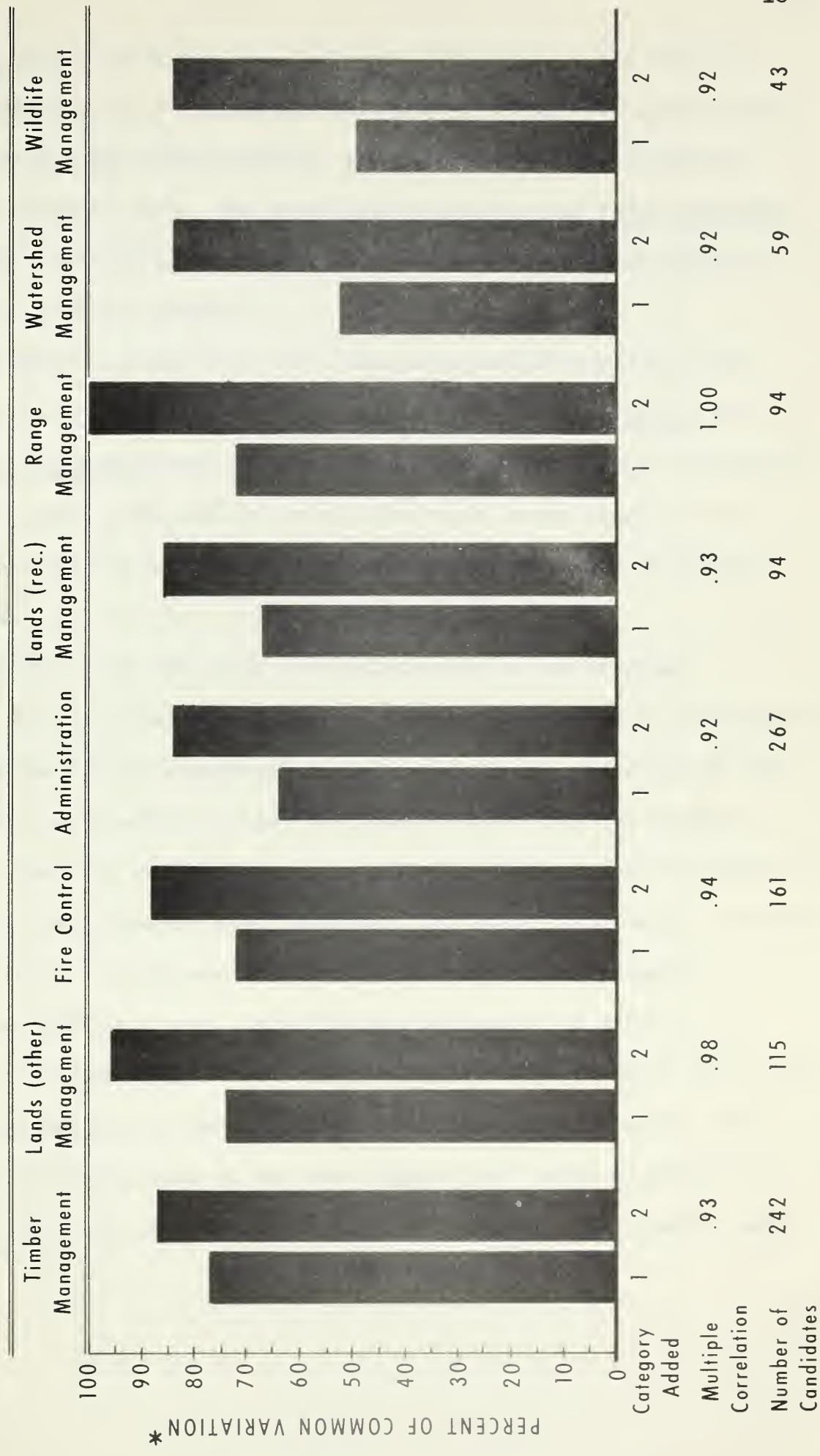
differed for the different areas of work. Similarly, eight out of
fifteen qualifications categories yielded most of the differential infor-
mation but as with characteristics, the categories differed for the
different areas of work. The <u>total</u> <u>characteristics</u> and <u>total</u> <u>qualifica-</u>
<u>tions</u> scores were found to combine in a manner in accordance with the
prescribed weighting system.

The analysis showed that there were some inconsistencies in the
manner in which supervisors arrived at the <u>total</u> <u>characteristics</u> and the
<u>total</u> <u>qualifications</u> scores but that there was almost perfect consistency
in arriving at a promotability index from these latter scores. It is
notable in this latter instance that an explicit weighting system was
prescribed.

In light of the foregoing, the third question can be posed:

(3) Do the present practices, as they are manifested by the analysis
of the current decision-making process, result in the selection of indi-
viduals who perform well in the positions to which they are promoted?

This question can be answered on either a judgmental or an empirical
basis. In the judgmental case management can state their degree of satis-
faction with the performance of persons currently being promoted.

In the empirical case, the different categories of information
would be evaluated against the individual's actual performance on the job
to which he has been promoted. Those categories of information that are
predictive of performance at the next higher level could be identified. A
statement as to the success of the selection process could then be made.

If management is satisfied with the performance of people being promoted under this system then this analysis shows the kinds of information that are critical in making these decisions. If management feels the need to improve the system, however, what then might be done?

One possibility is to take the current forms and apply an explicit weighting system to all of the categories of information. This would ensure greater consistency but would also have detrimental effects. It might weaken the supervisor's position because he would not know the kind of promotion recommendation that he had given his supervisee. If a supervisor is to encourage effective performance on the part of his supervisees he must have the means for rewarding them for effective behaviors and a favorable promotion recommendation is one way of doing this.

Another more feasible approach is to identify the kinds of behaviors that lead to effective and ineffective job performance and provide the supervisor with a means for documenting the occurrence of these behaviors on the part of his supervisees. Then, when an administrative decision, such as a promotion recommendation must be made, the supervisor can refer to his documentations. Consistency amongst supervisors can be achieved by training them to recognize and categorize the occurrence of these behaviors so that they can then be documented and utilized by him in making administrative decisions.

# A P P E N D I X   A

## Coding of Variables

## Characteristics Coding

The coding routine for characteristics is the same as that given in the Employee Appraisal Guide (p. 16), that is 1 to 4 representing strong to weak, with 5 indicating not measured, and X signifying inapplicable. (The abstractness characteristic was not entered due to its infrequent usage.) The resulting analysis involved the eleven characteristics of: (1) Drive; (2) Self-Confidence; (3) Objectiveness; (4) Responsiveness; (5) Initiative; (6) Persistence; (7) Versatility; (8) Originality; (9) Open-Mindedness; (10) Sociability; (11) Service Concept and; (12) Total Characteristics (which was coded A=4, B=3, C=2, D=1).

## Qualifications Coding

In coding qualifications an attempt was made to be as inclusive as possible of the information on each individual's form. Thus more categories than necessary were included. These categories were coded as follows:

1. Number of children - ranges upwards from 0 for no children.

2. Availability for transfer - 1 for Yes, 0 for No.

3. Need for transfer - 1 for Yes, 0 for No.

4. Growth potential - 1 for a favorable statement, 0 for none.

5. Remarks - 1 for remarks favorable to promotion, 0 for all others.

6. Date of entry on present grade - high number represents recent entry into grade.

7. Date of entry on present assignment - high number represents recent entry to present assignment.

8. Date of birth - record year of birth - low number represents older age.

9. Number of specialties appraised - high number indicates many specialties.

10. Managerial skills - low number indicates much skill.

11. Professional interest - low number indicates much professional interest.

12. English composition - low number indicates much skill.

13. Preference for each specialty appraised - low number indicates much preference for that specialty.

14. Number of years experience in specialty - high number indicates many years experience.

15. Breadth of experience in specialty - number of different regions worked in, in this specialty.

16. Total qualifications - coded A=4, B=3, C=2, D=1.

## Promotability Coding

1. Total characteristics score - coded as stated above.

2. Total qualifications score - coded as stated above.

3. Overall eligibility ranking - coded as A=4, B=3, C=2, D=1.

# A P P E N D I X    B


Glossary of Statistical Terms


Statistical Summaries of Characteristics
and Qualifications Analyses

A brief glossary of some statistical measures presented in the results is listed below:

(a) Mean - the average value obtained by adding up all the scores for a category and dividing by the total number of scores.

(b) Standard Deviation (S.D.) - a measure of the extent to which scores vary about the mean.

(c) N - the number of individuals involved in the analysis.

(d) Correlation - a measure of the extent to which two categories contain common information. This measure varies from +1.00 for a perfect positive relationship through 0.00 for no relationship to -1.00 for a perfect negative relationship.

Statistical summaries of the qualifications, characteristics and promotability analyses are given in the following Exhibits. The r column represents the correlation of each of the characteristics or qualifications scores with the total characteristics or total qualifications scores respectively. The negative value of these correlations merely reflects the manner of coding. Thus, for each characteristic a low number indicates high standing whereas on the total characteristics a high number indicates high standing.

Exhibit 12

TMCA

Statistical Summary of Timber Management Characteristics Analysis

| | Intercorrelations | | | | | | | | | | | r |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | |
| 1. Drive | | | | | | | | | | | | -.43 |
| 2. Self-Confidence | .30 | | | | | | | | | | | -.39 |
| 3. Objectiveness | .06 | .18 | | | | | | | | | | -.36 |
| 4. Responsiveness | .35 | .26 | .25 | | | | | | | | | -.39 |
| 5. Initiative | .46 | .43 | .16 | .35 | | | | | | | | -.44 |
| 6. Persistence | .37 | .27 | .35 | .33 | .35 | | | | | | | -.44 |
| 7. Versatility | .31 | .26 | .14 | .21 | .31 | .14 | | | | | | -.37 |
| 8. Originality | .37 | .35 | .21 | .24 | .41 | .27 | .34 | | | | | -.42 |
| 9. Open-Mindedness | .06 | .01 | .40 | .35 | -.02 | .22 | .10 | -.03 | | | | -.31 |
| 10. Sociability | .14 | .05 | .12 | .21 | .04 | .07 | .17 | .06 | .32 | | | -.33 |
| 11. Service Concept | .18 | .07 | .31 | .27 | .07 | .25 | .18 | .10 | .37 | .45 | | -.36 |
| Mean | 1.50 | 1.52 | 1.74 | 1.58 | 1.50 | 1.50 | 1.77 | 1.75 | 1.60 | 1.50 | 1.36 | 3.24 |
| Standard Deviation | .57 | .57 | .62 | .59 | .61 | .57 | .58 | .63 | .63 | .58 | .51 | .63 |

N=245

Exhibit 13

TMQ

Statistical Summary of Timber Management Qualifications Analysis

N=248

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | r |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Intercorrelations | | | | | | | |
| No. of Children | | .06 | .04 | .07 | .03 | .00 | .10 | .32 | -.15 | -.09 | -.02 | -.05 | -.09 | -.07 | -.07 | .98 |
| Avail. for Transfer | | | .15 | -.04 | .13 | -.02 | .07 | .23 | -.12 | -.08 | -.02 | .07 | -.08 | .04 | .02 | .02 |
| Need for Transfer | | | | .02 | .04 | -.09 | -.04 | .02 | .00 | .14 | .10 | .05 | .03 | .01 | .02 | -.05 |
| Growth Potential | | | | | .23 | .14 | .15 | .26 | -.01 | -.15 | -.13 | -.02 | .03 | .01 | .07 | .07 |
| Remarks | | | | | | -.03 | .06 | .16 | -.04 | -.27 | -.25 | -.16 | .05 | .03 | -.07 | .07 |
| EOD Present Grade | | | | | | | .27 | .44 | -.06 | -.11 | -.09 | .04 | -.05 | -.19 | -.12 | .07 |
| EOD Present Assignment | | | | | | | | .34 | .01 | -.05 | -.01 | -.02 | .03 | -.07 | -.06 | -.16 |
| Date of Birth | | | | | | | | | -.04 | -.30 | -.18 | -.13 | .05 | -.28 | .02 | -.12 |
| No. of Specialties | | | | | | | | | | -.04 | -.02 | .01 | .66 | -.49 | -.13 | -.12 |
| Managerial Skills | | | | | | | | | | | .21 | .20 | .01 | -.38 | -.07 | -.16 |
| Professional Interest | | | | | | | | | | | | .06 | -.08 | .23 | .10 | -.17 |
| English Composition | | | | | | | | | | | | | -.04 | .16 | -.04 | -.16 |
| Preference for Specialty | | | | | | | | | | | | | | -.46 | -.03 | .32 |
| No. of Yrs. Exp. in Spec. | | | | | | | | | | | | | | | .19 | -.35 |
| Breadth of Exp. in Spec. | | | | | | | | | | | | | | | | -.02 |
| Mean | 2.26 | .69 | .12 | .79 | .28 | 58.48 | 57.41 | 1914.03 | 3.14 | 1.54 | 1.36 | 1.77 | 2.10 | 9.03 | 1.21 | 2.77 |
| S.D. | 1.38 | .46 | .33 | .41 | .45 | 1.53 | 5.22 | 7.02 | 1.54 | .55 | .50 | .53 | 1.33 | 6.16 | .48 | .77 |

Exhibit 14

Statistical Summary of Timber Management
Eligibility Analysis

|  | Intercorrelations | | |
|  | 1 | 2 | r |
|---|---|---|---|
| 1. Total Characteristics |  | .14 | .88 |
| 2. Total Qualifications |  |  | .44 |
| Mean | 3.24 | 2.85 | 2.86 |
| Standard Deviation | .69 | .63 | .91 |
| N=242 |  |  |  |

Exhibit 15

Statistical Summary of Watershed Management
Eligibility Analysis

|  | Intercorrelations | | |
|  | 1 | 2 | r |
|---|---|---|---|
| 1. Total Characteristics |  | .01 | .72 |
| 2. Total Qualifications |  |  | .59 |
| Mean | 3.17 | 2.58 | 2.69 |
| Standard Deviation | .50 | .59 | .75 |
| N=59 |  |  |  |
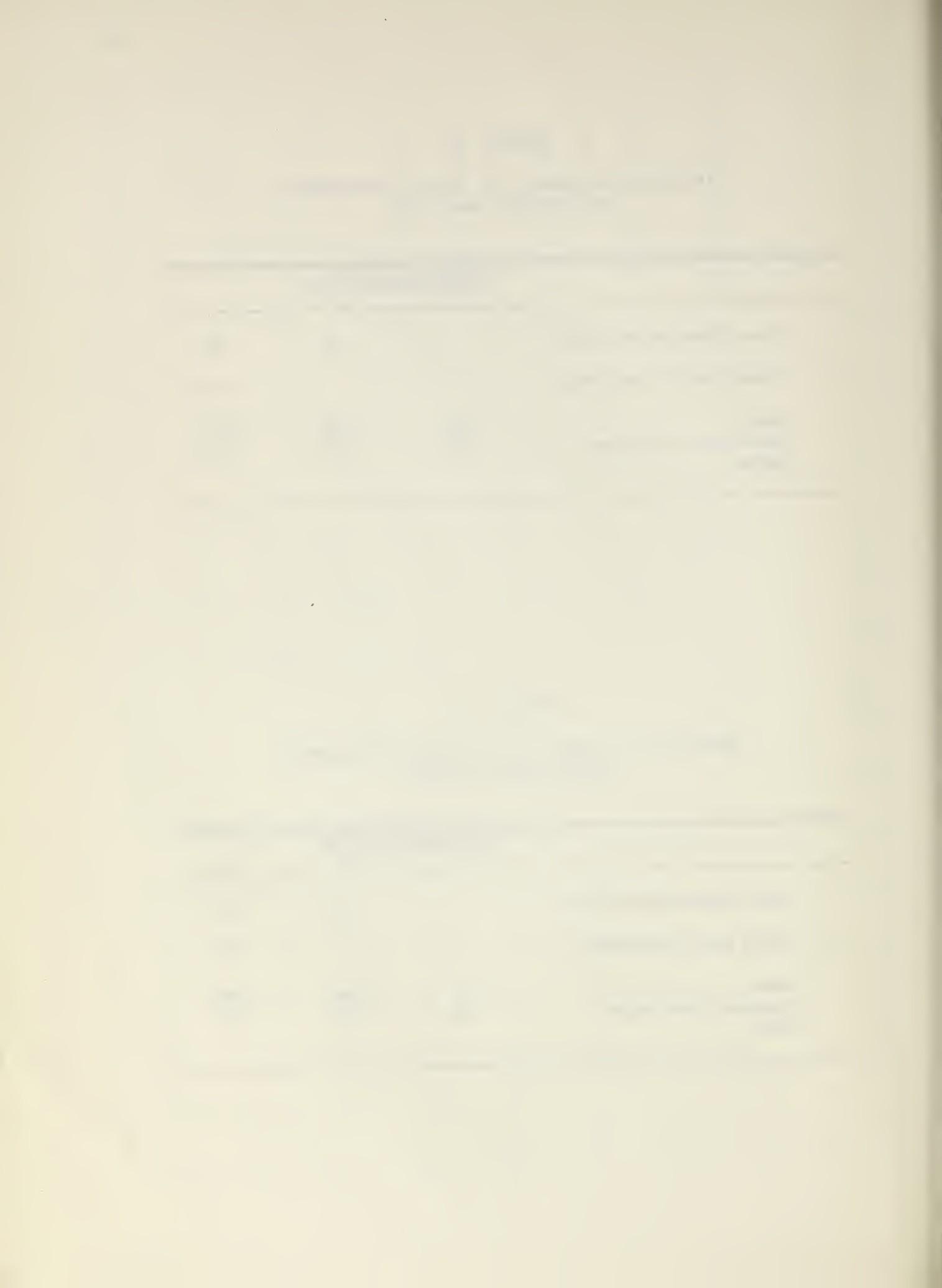
Exhibit 16

Statistical Summary of Lands (Other) Characteristics Analysis

| | | Intercorrelations | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | r |
| 1. | Drive | | .36 | .04 | .32 | .52 | .35 | .33 | .29 | -.03 | -.19 | .06 | .30 |
| 2. | Self-Confidence | | | .16 | .26 | .41 | .35 | .38 | .40 | .03 | -.10 | -.04 | .30 |
| 3. | Objectiveness | | | | .33 | .12 | .24 | .26 | .18 | .51 | .10 | .37 | -.41 |
| 4. | Responsiveness | | | | | .32 | .35 | .33 | .21 | .41 | .11 | .22 | -.53 |
| 5. | Initiative | | | | | | .36 | .34 | .36 | .03 | .16 | -.04 | -.30 |
| 6. | Persistence | | | | | | | .18 | .39 | .16 | .12 | .06 | -.44 |
| 7. | Versatility | | | | | | | | .32 | .14 | .06 | .10 | -.44 |
| 8. | Originality | | | | | | | | | .00 | .16 | .11 | -.31 |
| 9. | Open-Mindedness | | | | | | | | | | .21 | .07 | -.34 |
| 10. | Sociability | | | | | | | | | | | .23 | -.10 |
| 11. | Service Concept | | | | | | | | | | | | -.32 |
| | Mean | 1.54 | 1.44 | 1.69 | 1.61 | 1.48 | 1.50 | 1.75 | 1.74 | 1.67 | 1.51 | 1.42 | 3.25 |
| | Standard Deviation | .62 | .57 | .65 | .63 | .58 | .59 | .58 | .61 | .67 | .59 | .54 | .58 |

N=126

## Exhibit 17

### Statistical Summary of Lands (Other) Qualifications Analysis

N=131

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | r |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Intercorrelations | | | | | | | | | | |
| No. of Children | | .10 | .22 | .02 | .06 | .15 | .22 | .19 | -.25 | .08 | .00 | -.03 | .02 | .02 | .97 | -.04 |
| Avail. for Transfer | | | .12 | .02 | .01 | -.09 | -.94 | .21 | -.09 | -.14 | -.06 | -.14 | .16 | .09 | .07 | -.18 |
| Need for Transfer | | | | .09 | .02 | .00 | .10 | .13 | .06 | .08 | .11 | .00 | -.12 | -.07 | -.11 | -.03 |
| Growth Potential | | | | | .98 | .21 | .00 | .11 | .32 | -.27 | -.11 | -.17 | -.11 | -.07 | -.09 | .20 |
| Remarks | | | | | | -.96 | -.05 | .11 | -.04 | -.02 | -.11 | -.01 | -.15 | -.11 | -.07 | .06 |
| EOD Present Grade | | | | | | | .24 | .40 | -.26 | .00 | -.10 | .00 | -.25 | -.06 | -.09 | .16 |
| EOD Present Assignment | | | | | | | | .26 | .01 | .01 | .07 | .09 | -.08 | .00 | -.16 | -.06 |
| Date of Birth | | | | | | | | | -.04 | -.26 | -.08 | -.08 | -.11 | -.31 | -.13 | -.21 |
| No. of Specialties | | | | | | | | | | -.05 | -.08 | -.07 | .33 | -.22 | -.03 | -.06 |
| Managerial Skills | | | | | | | | | | | .14 | .18 | .05 | .04 | .92 | .03 |
| Professional Interest | | | | | | | | | | | | .06 | -.14 | -.03 | .02 | -.06 |
| English Composition | | | | | | | | | | | | | -.94 | -.15 | -.01 | -.32 |
| Preference for Specialty | | | | | | | | | | | | | | -.05 | .20 | .10 |
| No. of Yrs. Exp. in Spec. | | | | | | | | | | | | | | | .30 | -.16 |
| Breadth of Exp. in Spec. | | | | | | | | | | | | | | | | .12 |
| Mean | 2.05 | .64 | .11 | .76 | .18 | 58.53 | 56.38 | 1912.92 | 3.98 | 1.59 | 1.44 | 1.77 | 2.38 | 4.32 | 1.06 | 2.59 |
| S.D. | 1.32 | .48 | .32 | .43 | .38 | 1.17 | 8.27 | 6.40 | 1.48 | .53 | .53 | .55 | 1.33 | 3.96 | .41 | .79 |

Exhibit 18

Statistical Summary of Lands (Other)
Eligibility Analysis

|  | | Intercorrelations | | |
| --- | --- | --- | --- | --- |
|  | | 1 | 2 | r |
| 1. | Total Characteristics | | .13 | .86 |
| 2. | Total Qualifications | | | .56 |
| | Mean | 3.23 | 2.77 | 2.88 |
| | Standard Deviation | .57 | .57 | .85 |
| | N=115 | | | |

Exhibit 19

Statistical Summary of Lands (Recreation)
Eligibility Analysis

|  | | Intercorrelations | | |
| --- | --- | --- | --- | --- |
|  | | 1 | 2 | r |
| 1. | Total Characteristics | | .02 | .82 |
| 2. | Total Qualifications | | | .46 |
| | Mean | 3.19 | 2.81 | 2.83 |
| | Standard Deviation | .59 | .59 | .86 |
| | N=94 | | | |

Exhibit 20

Statistical Summary of Wildlife Management
Eligibility Analysis

|  | | Intercorrelations | | |
| --- | --- | --- | --- | --- |
|  | | 1 | 2 | r |
| 1. | Total Characteristics | | .11 | .70 |
| 2. | Total Qualifications | | | .66 |
|  | Mean | 3.30 | 2.81 | 3.00 |
|  | Standard Deviation | .47 | .66 | .66 |
|  | N=43 | | | |

Exhibit 21

Statistical Summary of Range Management
Eligibility Analysis

|  | | Intercorrelations | | |
| --- | --- | --- | --- | --- |
|  | | 1 | 2 | r |
| 1. | Total Characteristics | | .03 | .85 |
| 2. | Total Qualifications | | | .59 |
|  | Mean | 3.26 | 2.98 | 2.95 |
|  | Standard Deviation | .58 | .71 | .84 |
|  | N=94 | | | |

Exhibit 22

FIRCA

Statistical Summary of Fire Control Characteristics Analysis

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | r |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Intercorrelations | | | | | | | |
| 1. | Drive | | | | | | | | | | | | -.41 |
| 2. | Self-Confidence | .31 | | | | | | | | | | | -.42 |
| 3. | Objectiveness | .12 | .17 | | | | | | | | | | -.32 |
| 4. | Responsiveness | .38 | .29 | .24 | | | | | | | | | -.39 |
| 5. | Initiative | .53 | .49 | .25 | .40 | | | | | | | | -.42 |
| 6. | Persistence | .33 | .31 | .34 | .33 | .41 | | | | | | | -.43 |
| 7. | Versatility | .31 | .32 | .20 | .37 | .46 | .16 | | | | | | -.34 |
| 8. | Originality | .35 | .39 | .17 | .27 | .46 | .31 | .40 | | | | | -.34 |
| 9. | Open-Mindedness | .07 | .04 | .40 | .24 | -.03 | .25 | .12 | -.01 | | | | -.37 |
| 10. | Sociability | .09 | .06 | .14 | .16 | -.03 | .09 | .15 | .14 | .32 | | | -.25 |
| 11. | Service Concept | .15 | .18 | .34 | .32 | .14 | .33 | .24 | .19 | .44 | .39 | | -.35 |
| | Mean | 1.53 | 1.54 | 1.75 | 1.52 | 1.52 | 1.51 | 1.76 | 1.82 | 1.58 | 1.48 | 1.39 | 3.17 |
| | Standard Deviation | .60 | .58 | .62 | .54 | .60 | .58 | .62 | .64 | .64 | .62 | .54 | .65 |

N=169

Exhibit 23

Statistical Summary of Fire Control Qualifications Analysis

FCQR

N=166

| | | | | | | | Intercorrelations | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | r |
| No. of Children | | | | | | | | | | | | | | | | -.06 |
| Avail. for Transfer | .08 | | | | | | | | | | | | | | | -.01 |
| Need for Transfer | .04 | .12 | | | | | | | | | | | | | | -.04 |
| Growth Potential | .07 | .07 | .06 | | | | | | | | | | | | | .10 |
| Remarks | .10 | .11 | .07 | .17 | | | | | | | | | | | | .08 |
| EDD Present Grade | .03 | .10 | .10 | .15 | .03 | | | | | | | | | | | .11 |
| EDD Present Assignment | .07 | .03 | .00 | -.03 | .13 | .17 | | | | | | | | | | .10 |
| Date of Birth | .30 | .29 | .07 | .22 | .20 | .09 | .28 | | | | | | | | | .10 |
| No. of Specialties | -.12 | -.09 | .05 | .03 | .16 | -.01 | .02 | -.05 | | | | | | | | .11 |
| Managerial Skills | -.08 | -.17 | .26 | -.31 | -.07 | -.16 | -.13 | -.31 | -.04 | | | | | | | -.03 |
| Professional Interest | -.15 | -.08 | .09 | -.22 | -.07 | -.05 | -.18 | -.28 | -.02 | .22 | | | | | | -.15 |
| English Composition | -.12 | -.01 | .93 | -.19 | .04 | .02 | -.01 | -.03 | .05 | -.02 | .08 | | | | | -.10 |
| Preference for Specialty | -.02 | -.15 | -.15 | -.04 | -.06 | .02 | -.05 | -.05 | -.03 | -.08 | .22 | .10 | | | | -.30 |
| No. of Yrs. Exp. in Spec. | -.20 | -.03 | -.02 | -.02 | -.22 | -.08 | -.17 | -.35 | -.36 | -.14 | .17 | .18 | .09 | | | .21 |
| Breadth of Exp. in Spec. | -.08 | -.01 | -.01 | -.01 | -.08 | .03 | .10 | -.17 | -.11 | -.10 | -.03 | -.18 | -.30 | .13 | | .76 |
| Mean | 2.14 | .67 | .13 | .76 | .24 | 58.32 | 57.64 | 1914.39 | 3.59 | 1.67 | 1.37 | 1.80 | 2.73 | 6.01 | 2.63 | |
| S.D. | 1.47 | .47 | .34 | .43 | .43 | 5.50 | 1.68 | 7.05 | 1.47 | .56 | .52 | .54 | 1.51 | 4.92 | .76 | |

Exhibit 24

Statistical Summary of Fire Control
Eligibility Analysis

| | | Intercorrelations | | |
|---|---|---|---|---|
| | | 1 | 2 | r |
| 1. | Total Characteristics | | .11 | .85 |
| 2. | Total Qualifications | | | .49 |
| | Mean | 3.20 | 2.76 | 2.79 |
| | Standard Deviation | .63 | .63 | .89 |
| | N=161 | | | |

Exhibit 2:

Statistical Summary of Administrative Characteristics Analysis

| | | Intercorrelations | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | r |
| 1. Drive | | | | | | | | | | | | -.40 |
| 2. Self-Confidence | .28 | | | | | | | | | | | -.40 |
| 3. Objectiveness | .14 | .16 | | | | | | | | | | -.34 |
| 4. Responsiveness | .38 | .26 | .31 | | | | | | | | | -.42 |
| 5. Initiative | .54 | .45 | .16 | .36 | | | | | | | | -.38 |
| 6. Persistence | .31 | .26 | .26 | .30 | .34 | | | | | | | -.32 |
| 7. Versatility | .33 | .29 | .20 | .31 | .41 | .14 | | | | | | -.35 |
| 8. Originality | .33 | .39 | .19 | .25 | .40 | .29 | .32 | | | | | -.39 |
| 9. Open-Mindedness | .08 | .04 | .39 | .37 | .02 | .19 | .13 | .00 | | | | -.30 |
| 10. Sociability | .16 | .10 | .20 | .23 | .08 | .08 | .22 | .11 | .34 | | | -.32 |
| 11. Service Concept | .20 | .11 | .33 | .31 | .12 | .20 | .27 | .13 | .43 | .40 | | -.35 |
| Mean | 1.46 | 1.52 | 1.68 | 1.49 | 1.48 | 1.46 | 1.73 | 1.75 | 1.63 | 1.43 | 1.35 | 3.03 |
| Standard Deviation | .58 | .58 | .62 | .58 | .58 | .56 | .59 | .59 | .67 | .57 | .52 | .74 |

N=274

N=279

## Exhibit 26

## Statistical Summary of Administrative Qualifications Analysis

| | | | | | | | Intercorrelations | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | r |
| No. of Children | | .04 | .02 | .04 | .05 | .10 | .18 | .28 | -.18 | -.01 | -.11 | -.04 | -.10 | -.07 | -.03 | -.14 |
| Avail. for Transfer | | | .12 | .07 | .09 | .11 | .10 | .23 | -.04 | -.15 | -.05 | -.11 | -.03 | .07 | .07 | .13 |
| Need for Transfer | | | | .02 | .07 | .04 | .00 | .09 | .02 | .14 | .09 | .18 | -.01 | -.09 | .05 | -.08 |
| Growth Potential | | | | | .21 | .11 | .23 | .26 | -.02 | -.33 | -.29 | -.13 | -.03 | .07 | .18 | .18 |
| Remarks | | | | | | .08 | .23 | .21 | -.08 | -.13 | -.12 | -.04 | -.02 | -.05 | .22 | .08 |
| EOD Present Grade | | | | | | | .23 | .46 | -.11 | -.18 | -.09 | -.02 | -.08 | -.05 | -.14 | .00 |
| EOD Present Assignment | | | | | | | | .30 | -.13 | -.02 | -.01 | .02 | .01 | -.03 | -.08 | .04 |
| Date of Birth | | | | | | | | | -.19 | -.30 | -.23 | -.14 | -.20 | -.25 | -.10 | .07 |
| No. of Specialties | | | | | | | | | | .05 | .07 | .08 | .32 | .04 | .00 | .02 |
| Managerial Skills | | | | | | | | | | | .20 | .22 | .27 | .02 | .02 | -.35 |
| Professional Interest | | | | | | | | | | | | .08 | .12 | .02 | -.04 | -.18 |
| English Composition | | | | | | | | | | | | | .06 | -.02 | -.04 | -.15 |
| Preference for Specialty | | | | | | | | | | | | | | .09 | -.18 | -.30 |
| No. of Yrs. Exp. in Spec. | | | | | | | | | | | | | | | -.11 | .03 |
| Breadth of Exp. in Spec. | | | | | | | | | | | | | | | | .03 |
| Mean | 2.28 | .72 | .11 | .78 | .25 | 58.52 | 58.01 | 1915.17 | 3.35 | 1.58 | 1.33 | 1.76 | 1.69 | 6.66 | 1.12 | 2.40 |
| S.D. | 1.43 | .45 | .31 | .41 | .43 | 1.70 | 4.70 | 7.07 | 1.35 | .56 | .50 | .54 | 1.05 | 6.60 | .44 | .64 |

Exhibit 27

Statistical Summary of Administrative
Eligibility Analysis

|  | Intercorrelations | | |
|  | 1 | 2 | r |
|---|---|---|---|
| 1. Total Characteristics |  | .01 | .80 |
| 2. Total Qualifications |  |  | .45 |
| Mean | 3.12 | 2.48 | 2.50 |
| Standard Deviation | .68 | .57 | .92 |
| N=267 |  |  |  |

# APPENDIX    C

Some Multiple Correlations and Raw Score
Weights for Selecting the Categories
Which Contribute Most to Estimation

The following exhibits present the squared multiple correlations and raw score weights for each step in selecting the categories which contribute most to estimation.

The b weights are the different weights applied to the several categories of information in order to combine them to most accurately predict some other category of information. The squared multiple correlation (S.M.C.) is a measure of the adequacy with which this weighting system predicts the category of information. It varies from +1.00 for perfect prediction to 0.00 for lack of any predictability.

Exhibit 28

TIMBER MANAGEMENT

Squared Multiple Correlation and Raw Score Weights for Each Step in Selecting
Characteristic Categories Which Contribute Most to Estimating Total Characteristics

| | Weights for Addition of Next Best Category on Each Trial | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Drive | | | | | | | | | -.112 | -.133 | -.129 |
| Self-Confidence | | | | | | -.166 | -.151 | -.153 | -.148 | -.140 | -.137 |
| Objectiveness | | | | | | | | | | -.105 | -.105 |
| Responsiveness | | | | | | | | | | | -.026 |
| Initiative | | | | -.247 | -.264 | -.217 | -.193 | -.198 | -.170 | -.164 | -.158 |
| Persistence | -.487 | -.391 | -.372 | -.304 | -.248 | -.229 | -.235 | -.212 | -.190 | -.166 | -.163 |
| Versatility | | | | | | | -.137 | -.126 | -.112 | -.110 | -.110 |
| Originality | | -.324 | -.312 | -.230 | -.247 | -.217 | -.188 | -.184 | -.169 | -.152 | -.152 |
| Open-Mindedness | | | | | -.198 | -.200 | -.190 | -.165 | -.168 | -.133 | -.126 |
| Sociability | | | -.307 | -.308 | -.242 | -.238 | -.222 | -.178 | -.169 | -.177 | -.175 |
| Service Concept | | | | | | | | -.145 | -.138 | -.117 | -.115 |
| Squared Multiple Correlation | .20 | .29 | .37 | .42 | .45 | .47 | .48 | .49 | .50 | .51 | .51 |

Exhibit 29

## TIMBER MANAGEMENT

Squared Multiple Correlation and Raw Score Weights for Each Step in Selecting
Qualification Categories Which Contribute Most to Estimating Total Qualifications

| | | | | | | | Weights for Addition of Next Best Category on Each Trial | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| No. of Children | | | | | | | | | .045 | .046 | .046 | .044 | .045 | .045 | .045 |
| Avail. for Transfer | | | | | | | | | | | | | .063 | .070 | .070 |
| Need for Transfer | | | | | | | | | | | | | | -.062 | -.061 |
| Growth Potential | | | | | | | | | | | .082 | .087 | .092 | .095 | .094 |
| DOD Present Grade | | | | | | | -.047 | -.045 | -.030 | -.022 | -.023 | -.025 | -.027 | -.024 | -.026 |
| Remarks | | | | | | | | .124 | .142 | .148 | .140 | .126 | .120 | .115 | .120 |
| DOD Present Assignment | | | | | | | | | | | | | | | .000 |
| Date of Birth | | | | | | | | | -.010 | -.014 | -.014 | -.015 | -.015 | -.016 | -.016 |
| No. of Specialties | | | | | | .085 | .081 | .086 | .078 | .083 | .083 | .083 | .081 | .080 | .080 |
| Managerial Skills | | | | -.257 | -.218 | -.223 | -.233 | -.219 | -.236 | -.235 | -.222 | -.213 | -.210 | -.208 | -.202 |
| Professional Interest | | | | | | | | | | | -.095 | -.085 | -.089 | -.087 | -.084 |
| English Composition | | | | -.222 | -.242 | -.231 | -.233 | -.242 | -.242 | -.241 | -.234 | -.228 | -.224 | -.222 | -.223 |
| Preference for Specialty | | -.203 | -.151 | -.147 | -.153 | -.214 | -.220 | -.224 | -.227 | -.226 | -.225 | -.225 | -.223 | -.224 | -.223 |
| No. of Yrs. Exp. in Spec. | | | .024 | .030 | .031 | .034 | .030 | .031 | .026 | .025 | .028 | .026 | .026 | .026 | .026 |
| Breadth of Exp. in Spec. | | | | | | | | | | | | -.060 | -.063 | -.064 | -.064 |
| Squared Multiple Correlation | .17 | .19 | .28 | .29 | .33 | .34 | .34 | .35 | .36 | .36 | .36 | .36 | .36 | .36 | .35 |

Exhibit 30

## LANDS MANAGEMENT

Squared Multiple Correlation and Raw Score Weights for Each Step in Selecting
Characteristic Categories Which Contribute Most to Estimating Total Characteristics

| | Weights for Addition of Next Best Category on Each Trial | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Drive | | | | | | | | -.030 | -.033 | -.030 | -.025 |
| Self-Confidence | | | | | | | | | | -.020 | -.018 |
| Objectiveness | | | | | -.109 | -.108 | -.108 | -.112 | -.102 | -.101 | -.101 |
| Responsiveness | -.492 | -.404 | -.321 | -.280 | -.262 | -.259 | -.259 | -.253 | -.245 | -.244 | -.242 |
| Initiative | | | | | | | | | | | -.017 |
| Versatility | | -.292 | -.274 | -.266 | -.247 | -.246 | -.236 | -.228 | -.228 | -.224 | -.222 |
| Persistence | | | -.268 | -.272 | -.256 | -.262 | -.249 | -.243 | -.241 | -.238 | -.236 |
| Originality | | | | | | | -.037 | -.034 | -.038 | -.034 | -.032 |
| Open-Mindedness | | | | | | | | | -.028 | -.028 | -.028 |
| Sociability | | | | | | -.036 | -.039 | -.045 | -.042 | -.043 | -.044 |
| Service Concept | | | | -.218 | -.178 | -.170 | -.166 | -.164 | -.157 | -.160 | -.162 |
| Squared Multiple Correlation | | .28 | .36 | .43 | .47 | .48 | .48 | .48 | .48 | .48 | .48 |

Exhibit 31

## LANDS MANAGEMENT

Squared Multiple Correlation and Raw Score Weights for Each Step in Selecting
Qualification Categories Which Contribute Most to Estimating Total Qualifications

|  | Weights for Addition of Next Best Category on Each Trial | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| No. of Children |  |  |  |  |  |  |  |  |  |  |  |  |  |  | -.006 |
| Avail. for Transfer |  |  |  |  |  |  | -.200 | -.195 | -.197 | -.180 | -.190 | -.186 | -.187 | -.193 | -.193 |
| Need for Transfer |  |  |  |  |  |  |  |  |  |  |  |  | .052 | .056 | .056 |
| Growth Potential |  |  |  | .406 | .391 | .403 | .394 | .404 | .395 | .386 | .384 | .397 | .401 | .397 | .398 |
| Remarks |  |  |  |  |  |  |  | .142 | .142 | .142 | .143 | .149 | .145 | .136 | .137 |
| DOD Present Grade |  |  | .207 | .190 | .168 | .168 | .154 | .160 | .167 | .178 | .176 | .173 | .177 | .178 | .178 |
| DOD Present Assignment |  |  |  |  |  |  |  |  |  |  |  | -.004 | -.004 | -.004 | -.004 |
| Date of Birth |  |  | -.030 | -.045 | -.052 | -.050 | -.046 | -.045 | -.045 | -.046 | -.044 | -.043 | -.042 | -.042 | -.042 |
| No. of Specialties |  |  |  |  |  |  |  |  |  | .031 | .035 | .037 | .038 | .036 | .035 |
| Managerial Skills |  |  |  |  |  |  |  |  |  |  |  | .057 | .059 | .054 | .056 |
| Professional Interest |  |  |  |  |  |  |  | .142 | .146 | .150 | .156 | .150 | .155 | .152 | .152 |
| English Composition | -.464 | -.491 | -.505 | -.456 | -.466 | -.463 | -.483 | -.488 | -.490 | -.497 | -.487 | -.494 | -.489 | -.492 | -.493 |
| Preference for Specialty |  |  |  |  | -.080 | -.096 | -.087 | -.076 | -.069 | -.081 | -.077 | -.079 | -.080 | -.079 | -.078 |
| No. of Yrs. Exp. in Spec. |  |  |  |  |  |  |  |  |  |  | .009 | .009 | .009 | .009 | .009 |
| Breadth of Exp. in Spec. |  |  |  |  |  | .280 | .296 | .290 | .295 | .304 | .279 | .282 | .287 | .290 | .291 |
| Squared Multiple Correlation | .10 | .16 | .25 | .29 | .31 | .33 | .34 | .35 | .35 | .36 | .36 | .35 | .36 | .36 | .36 |

Exhibit 32

## FIRE CONTROL

Squared Multiple Correlation and Raw Score Weights for Each Step in Selecting
Characteristic Categories Which Contribute Most to Estimating Total Characteristics

| | Weights for Addition of Next Best Category on Each Trial | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Drive | | | | -.252 | -.219 | -.214 | -.170 | -.160 | -.153 | -.158 | -.158 |
| Self-Confidence | | -.362 | -.377 | -.317 | -.278 | -.276 | -.240 | -.236 | -.225 | -.224 | -.223 |
| Objectiveness | | | | | | | | | | -.048 | -.045 |
| Responsiveness | | | | | | | | | -.074 | -.073 | -.070 |
| Initiative | | | | | | | -.141 | -.130 | -.118 | -.109 | -.110 |
| Persistence | -.479 | -.368 | -.282 | -.214 | -.217 | -.218 | -.186 | -.177 | -.167 | -.158 | -.153 |
| Versatility | | | | | -.142 | -.132 | -.093 | -.082 | -.068 | -.066 | -.063 |
| Originality | | | | | | | | -.063 | -.063 | -.061 | -.060 |
| Open-Mindedness | | | -.300 | -.299 | -.285 | -.253 | -.269 | -.259 | -.266 | -.250 | -.243 |
| Sociability | | | | | | -.106 | -.120 | -.120 | -.108 | -.107 | -.100 |
| Service Concept | | | | | | | | | | | -.032 |
| Squared Multiple Correlation | .19 | .28 | .36 | .41 | .42 | .43 | .44 | .44 | .45 | .45 | .45 |

## Exhibit 33

### FIRE CONTROL

Squared Multiple Correlation and Raw Score Weights for Each Step in Selecting
Qualification Categories Which Contribute Most to Estimating Total Qualifications

| | Weights for Addition of Next Best Category on Each Trial | | | | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of Children | | | | | | | | | | | | | | | -.013 |
| Avail. for Transfer | | | | | | | | | | | -.120 | -.121 | -.124 | -.132 | -.132 |
| Need for Transfer | | | | | | | | | | | | | | .082 | .083 |
| Growth Potential | | | | | | | | | | | | | -.069 | -.078 | -.077 |
| Remarks | | | | | | | | | | .133 | .140 | .136 | .145 | .136 | .140 |
| DOD Present Grade | | | | | | .063 | .058 | .066 | .064 | .066 | .065 | .068 | .069 | .069 | .068 |
| DOD Present Assignment | | | | | | | .012 | .014 | .013 | .013 | .013 | .012 | .012 | .012 | .012 |
| Date of Birth | | | | | | | | -.010 | -.012 | -.013 | -.011 | -.010 | -.010 | -.010 | -.010 |
| No. of Specialties | | | | | .114 | .118 | .116 | .108 | .110 | .107 | .110 | .110 | .115 | .118 | .114 |
| Managerial Skills | | | | | | | | | -.121 | -.116 | -.128 | -.126 | -.138 | -.155 | -.153 |
| Professional Interest | | | -.208 | -.251 | -.257 | -.228 | -.226 | -.125 | -.236 | -.233 | -.231 | -.224 | -.232 | -.237 | -.240 |
| English Composition | | -.222 | -.205 | -.232 | -.229 | -.235 | -.234 | -.237 | -.212 | -.220 | -.216 | -.217 | -.224 | -.225 | -.228 |
| Preference for Specialty | -.150 | -.142 | -.144 | -.115 | -.194 | -.194 | -.188 | -.188 | -.194 | -.189 | -.196 | -.200 | -.202 | -.204 | -.202 |
| No. of Yrs. Exp. in Spec. | | | | .028 | .032 | .037 | .039 | .034 | .034 | .035 | .035 | .035 | .036 | .036 | .035 |
| Breadth of Exp. in Spec. | | | | | | | | | | | | .074 | .073 | .077 | .074 |
| Squared Multiple Correlation | .09 | .11 | .13 | .16 | .18 | .20 | .21 | .21 | .22 | .22 | .23 | .23 | .23 | .23 | .23 |

Exhibit 34

ADMINISTRATION

Squared Multiple Correlation and Raw Score Weights for Each Step in Selecting
Characteristic Categories Which Contribute Most to Estimating Total Characteristics

| | Weights for Addition of Next Best Category on Each Trial | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Drive | | | | | -.225 | -.241 | -.242 | -.233 | -.220 | -.204 | -.186 |
| Self-Confidence | | -.400 | -.389 | -.293 | -.266 | -.274 | -.265 | -.264 | -.254 | -.245 | -.233 |
| Objectiveness | | | | | | | -.154 | -.138 | -.134 | -.125 | -.124 |
| Responsiveness | -.530 | -.423 | -.316 | -.236 | -.172 | -.147 | -.138 | -.128 | -.118 | -.113 | |
| Initiative | | | | | | | | | | | -.053 |
| Persistence | | | | | | | | | | -.088 | -.082 |
| Versatility | | | | | | | | | -.080 | -.086 | -.076 |
| Originality | | | | -.273 | -.228 | -.248 | -.227 | -.224 | -.211 | -.197 | -.192 |
| Open-Mindedness | | | | | | -.200 | -.155 | -.129 | -.131 | -.124 | -.127 |
| Sociability | | | -.298 | -.285 | -.270 | -.203 | -.197 | -.166 | -.159 | -.165 | -.168 |
| Service Concept | | | | | | | | -.132 | -.121 | -.115 | -.118 |
| Squared Multiple Correlation | .17 | .26 | .31 | .35 | .37 | .40 | .41 | .42 | .42 | .42 | .42 |

## Exhibit 35

### ADMINISTRATION

Squared Multiple Correlation and Raw Score Weights for Each Step in Selecting
Qualification Categories Which Contribute Most to Estimating Total Qualifications

| Qualification Categories | Weights for Addition of Next Best Category on Each Trial | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| No. of Children | | -.064 | -.070 | -.072 | -.076 | -.077 | -.077 | -.074 | -.080 | -.076 | -.072 | -.072 | -.072 | -.072 | -.072 |
| Avail. for Transfer | | | | | | .110 | .110 | .120 | .106 | .105 | .114 | .111 | .117 | .116 | .114 |
| Need for Transfer | | | | | | | | | | | -.068 | -.067 | -.067 | -.067 | -.067 |
| Growth Potential | | | | | | | .102 | .122 | .120 | .120 | .124 | .116 | .121 | .121 | .119 |
| Remarks | | | | | | | | | | | | .053 | .058 | .058 | .058 |
| EOD Present Grade | | | | | | | | -.026 | -.032 | -.030 | -.024 | -.024 | -.025 | -.026 | -.025 |
| EOD Present Assignment | | | | | | | | | .010 | .011 | .012 | .013 | .013 | .013 | .012 |
| Date of Birth | | | | | | | | | | | -.004 | -.005 | -.004 | -.004 | -.004 |
| No. of Specialties | | | | | | | | | | .032 | .031 | .033 | .033 | .034 | .034 |
| Managerial Skills | | -.392 | -.394 | -.354 | -.324 | -.308 | -.296 | -.275 | -.283 | -.284 | -.279 | -.288 | -.284 | -.277 | -.276 |
| Professional Interest | | | | | | | -.110 | -.110 | -.089 | -.092 | -.093 | -.100 | -.098 | -.094 | -.092 |
| English Composition | | | | | -.140 | -.136 | -.135 | -.131 | -.128 | -.131 | -.137 | -.141 | -.142 | -.135 | -.134 |
| Preference for Specialty | | | | -.079 | -.079 | -.076 | -.073 | -.076 | -.077 | -.079 | -.092 | -.094 | -.096 | -.097 | -.098 |
| No. of Yrs. Exp. in Spec. | | | | | | | | | | | | | .002 | .002 | .002 |
| Breadth of Exp. in Spec. | | | | | | | | | | | | | | | .014 |
| Squared Multiple Correlation | | .12 | .14 | .16 | .17 | .18 | .18 | .18 | .19 | .19 | .20 | .20 | .20 | .20 | .20 |

Exhibit 36

PROMOTABILITY

Squared Multiple Correlations and Raw Score Weights for Total Characteristics
and Total Qualifications Combination to Estimate Promotability

| | Characteristic Weight | Qualification Weight | Squared Multiple Correlation | Ratio of Characteristic Weight to Qualification Weight | No. of Individuals in the Analysis |
|---|---|---|---|---|---|
| Timber Management | 1.11 | .46 | .87 | 2.41 | 242 |
| Watershed Management | 1.06 | .74 | .84 | 1.43 | 59 |
| Land Uses (Other) | 1.19 | .89 | .96 | 1.72 | 115 |
| Land Uses (Recreation) | 1.18 | .64 | .86 | 1.94 | 94 |
| Wildlife Management | .90 | .59 | .84 | 1.52 | 43 |
| Range Management | 1.20 | .66 | 1.00 | 1.82 | 94 |
| Fire Control | 1.14 | .58 | .88 | 1.97 | 161 |
| Administration | 1.08 | .71 | .84 | 1.52 | 267 |